

CLAIMS

1. A method for identifying defects in a semiconductor or silicon structure comprising exposing said semiconductor or structure to at least one high intensity beam of light characterised by a spot size of between 0.1mm - 0.5 microns and a peak or average power of between 10^4 - 10^9 watts/cm²; and collecting luminescence from the semiconductor or structure so as to preserve defects in same.
2. A method according to Claim 1 comprising selecting the wavelength of said light so as to identify defects at a selective depth in said semiconductor or structure.
3. A method according to Claims 1 or 2 comprising exposing said semiconductor or silicon structure to a pulsed beam of light.
4. A method according to any proceeding claim comprising collecting luminescence from a series of focal planes.
5. An apparatus for undertaking photoluminescence imaging of a semiconductor or silicon structure characterised in that it comprises at least one high intensity light generating means which produces a beam of light having a spot size between 0.1mm - 0.5 microns and a peak or average power of between 10^4 - 10^9 watts/cm²; a means for collecting luminescence from the semiconductor or silicon wafer and means for producing images of said semiconductor or structure so as to observe any defects that may be present.

Replaced by Article 34

6. An apparatus according to Claim 5 wherein said light generating means is provided with modulation means whereby the wavelength of said light beam can be selected.
7. Apparatus according to Claims 5 or 6 wherein said light generating means is provided with modulation means whereby the intensity of said light beam may be selected.
8. Apparatus according to Claims 5-7 wherein means is provided to enable a pulsed beam of light to be produced.
9. Apparatus according to Claims 5-8 wherein said light generating means is provided with modulation means whereby the frequency of said light beam may be selected.
10. Apparatus according to Claims 5-9 wherein said apparatus comprises confocal optics whereby images of said semiconductor or structure may be obtained through a series of focal planes.